



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER

## PO039380

**Supplier:** MOA001-VU  
Monroe Aerospace  
399 East Drive  
Melbourne, FL 32904 USA  
Phone: 1-321-727-0047  
Fax: 1-321-727-7331

**PO No:** PO039380

**PO Date:** 3/21/18

**Due Date:** 3/28/18

**Purchase Order**

**Revision:**

**Revision Date:**

**Ship-To Contact:** Lavoie, Chantal  
clavoie@dartaero.com

**E-MAILED**  
APR 02 2018

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground

**Pymt Terms:** Net 30

**Freight Terms:**

**Special Comments:**

### Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	AN4-41A		Bolt receive ea	Firmed	3/28/18	500 Ea	150 Ea	500 Ea	\$0.84/Ea	\$420.00
2	AN4-6A		Bolt	Firmed	3/28/18	500 Ea	500 Ea	500 Ea	\$0.1397/Ea	\$69.85
3	AN5-32A		Bolt	Firmed	3/28/18	300 Ea	300 Ea	300 Ea	\$0.6814/Ea	\$204.42
<b>Grand Total:</b>										<b>\$694.27</b>

### Order Notes

Procurement Quality Clauses  
A005 RIGHT OF ENTRY  
A016 PERSONNEL QUALIFICATION  
A026 CERTIFICATION OF MATERIAL CONFORMANCE  
A032 PUBLIC LAW 101-592 FASTENER QUALITY ACT  
A033 STATEMENT OF CONFORMITY/TEST RECORDS FOR NAS, AN and MS FASTENERS  
A040 NOTIFICATION OF QUALITY ESCAPE  
A041 QUALITY MANAGEMENT SYSTEM  
A042 DART NOTIFICATION BY SUPPLIER  
A043 RETENTION OF QUALITY DOCUMENTS  
  
A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM  
A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 4/2/18 9:22 AM dart.lavoie.chantal



## CERTIFICATE OF CONFORMITY

NO: 632780

**BILL TO:**

DART AEROSPACE LTD.  
ACCTS. PAYABLE  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7

**SHIP TO:**

DART AEROSPACE LTD.  
ATTN: RECEIVING  
1270 ABERDEEN STREET  
HAWKESBURY, ON K6A 1K7

CUSTOMER PO	SHIP DATE	AIRWAY BILL/TRACKING #
PO39380	4/2/2018	1Z3165E06857826317

PART NO:	Description	CND	QTY	S/L		
AN4-41A	BOLT UNDRILLED	NE	15	18	LOT: 12903	MFR: AFC
AN4-41A	Customer Reference: BOLT UNDRILLED	NE	291	23	LOT: 12903	MFR: AFC
REV: 3	Customer Reference:					
AN4-41A	BOLT UNDRILLED	NE	150	24	LOT: 84369	MFR: MAC
REV: 3	Customer Reference:					
AN4-6A	BOLT UNDRILLED	NE	500	40	LOT: 22268	MFR: AFC
	Customer Reference:					
AN5-32A	BOLT UNDRILLED	NE	230	24	LOT: 24917	MFR: AIRFASCO
REV: 3	Customer Reference:					
AN5-32A	BOLT UNDRILLED	NE	70	20	LOT: 15137	MFR: AFC
	Customer Reference:					

CONDITIONS: NE - New OH-OVERHAULED RP-REPAIRED SV-SERVICEABLE

We hereby certify that the items that are a part of this Purchase Order have been visually & dimensionally found to conform to all applicable standards, drawings & specifications. The liability of ECAS, LLC is limited to replacement of any item which is rejected because of a defect in material or workmanship if notified within 30 days & liability shall not exceed the invoice value. Such replacement shall constitute satisfaction of all liability.

SIGNED: \_\_\_\_\_

For and on behalf of ECAS, LLC dba MONROE AEROSPACE

ECAS, LLC dba MONROE AEROSPACE  
399 EAST DRIVE MELBOURNE, FL 32904 PH: 800.330.3975

**2655 Harrison Ave. SW  
Canton, Ohio 44706-3047  
Phone: 330-430-6190  
Fax: 330-430-6199**

## CERTIFICATE OF CONFORMANCE

**ECAS LLC**

I Hereby Certify that on **09/11/17** Airfasco Industries provided the supplies called for by Contract/ PO Number **FL80545** in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7009 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.

**Quality Assurance Representative**

  
WM. DENT

[illegible]



2655 Harrison Ave. SW  
Canton, Ohio 44706-3047  
Phone: 330-430-6190  
Fax: 330-430-6199

**PHYSICAL AND CHEMICAL CERTIFICATION**

DATE MFG.: 11/10/14

PART NO.: AN4-41A per NASM4-41A rev. 3

AFC LOT NO.: 12903

QTY MFG.: 66,550

PROCUREMENT SPECIFICATION: Produced per NASM 6812

**HEAT TREAT**

VENDOR: Brite Metal

CERTIFICATION NO.: B-135010

PROCUREMENT SPECIFICATION: Heat Treat per MIL-H-6875 H

**PLATING**

VENDOR: Beringer Plating

CERTIFICATION NO.: 42386

PROCUREMENT SPECIFICATION: Cadmium Plate per AMS QQ-P-416, Type II, Class 2, F

**MATERIAL**

MILL: Republic/BCS

COUNTRY OF MELT: USA

HEAT: 532087

GRADE SPECIFICATION: Alloy Steel per AMS 6300 E, Type 4037, .275"

**4037 MATERIAL CHEMISTRY**

ELEMENT-ID.	-C-	-MN-	-P-	-S-	-SI-	-NI-	-CR-	-MO-	-CU-	-AL-	Other
LADLE	.360	.750	.015	.006	.280	.022	.021	.210	.029	.043	

1

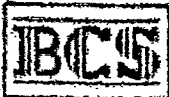
**PHYSICAL PROPERTIES**

PHYSICAL	TENSILE	YIELD	SHEAR	HARDNESS
REQUIRED	4,080 lbs.	3,130 lbs.	3,680 lbs.	HRC 26-32
ACTUAL	5,229 lbs.	4,685 lbs.	4,226 lbs.	HRC 29-30

We hereby certify that the above data is correct and that the fasteners have been manufactured and inspected in accordance with Airfasco Industries quality requirements.

Airfasco Industries  
Quality Assurance Representative:

T. West



Bluff City Steel, LLC  
P.O. Box 13191  
Memphis TN 38113

Phone (901) 946-1005  
Fax (901) 946-6206

## Material Certification

### Sold To

Airfasco Industries, Inc.  
2655 Harrison Avenue SW

Canton, Ohio 44706

### Ship To

Airfasco Industries  
2655 Harrison Avenue SW

Canton, Ohio 44706

Purchase Order 40144  
Order 18143  
Heat/Lot 532087  
Customer Part  
Tensile 75734  
Customer Spec  
Bill of Lading # 28151

Vendor Arcelor  
Origin U.S.A.

Order Notes

Product Rod CHQ Anneal P/LUBE 7.0 4037 Silicon Killed Fine Grain Round

### Product Specification Testing

Results

Results

### Heat Chemistry

Al	C	Cr	Cu	Mn	Mo	N	Ni
0.0430	0.3600	0.0210	0.0280	0.7500	0.2100	0.0060	0.0220
P	S	Si					
0.0150	0.0080	0.2800					

RECEIVED  
OCT 30 2005

Approved By :

*[Signature]*

Date :

10/25/06



A DIVISION OF J.T. ADAMS CO., INC.

4520 WILLOW PARKWAY  
CLEVELAND, OHIO 44125  
PHONE (216) 641-3290  
FAX (216) 641-1223  
www.tensile.com

**CERTIFIED TEST REPORT**

Airfasco Industries Inc.  
2655 Harrison Ave. SW  
Canton OH 44706

Job No.: B4-190-740  
Date: 7-10-14  
Cust. PO#: 61092

Description: 1 sample Mill: Republic Steel Country of Melt: USA  
Material: 4037 Heat# 532087  
Spec: AMS 6300E

**TEST RESULTS**

**Product Analysis of Elements in % (OES per TTML C-011):**

	<u>Actual</u>	<u>Requirements</u>
Carbon	0.38	0.35-0.40
Manganese	0.77	0.70-0.90
Phosphorus	0.023	0.040 Max.
Sulfur	0.011	0.040 Max.
Silicon	0.29	0.15-0.35
Chromium	0.02	0.20 Max.
Nickel	0.02	0.25 Max.
Molybdenum	0.20	0.20-0.30
Columbium	0.006	N/A
Aluminum	0.051	N/A
Copper	0.04	0.35 Max.
Vanadium	0.002	N/A
Titanium	0.004	N/A

The above conforms to specifications listed.

*Tracey Wagoner*  
Authorized Agent



Page 1 of 1

This Report May Not Be Reproduced Except in Full

This report represents Tensile Testing interpretation of the results obtained from the test and is not to be construed as a Warranty or Warranty of the condition of the materials tested. Tensile Testing shall not be held liable for misinterpretation of conditions, loss, damage, injury or death arising from or attributable to delay preceding a test or subsequent to performance of a test.

CERTIFICATE OF COMPLIANCE

Approved by Bruce Hogie  
Revision Date: 3-9-04

SUPPLIER: BERINGER PLATING, INC.  
1211 DeValera Ave.  
Akron, OH 44310

CUSTOMER: Airfasco Industries, Inc.

Purchase Order Number 16565

Part Number AN4-41A Rev.           

Lot Quantity 4,134 lbs.

Specification - Cad/QQ-P-416F Amendment 3 Ty 2 Cl 2

Coating thickness .0003"

Baking (if required) N/A Hours at            F

Inspection Level to applicable standard: ACC. X

S-3 of MIL.-STD.-105D: 4 %

ASTM B602 Table II: 1.50%

Aircraft Braking System: 1%

Certified By: James Beringer Jr. Date: 12/20/06

James Beringer Jr.  
President

42386

Gordon

## CERTIFICATION OF PROCESS

BRITE METAL TREATING, INC.  
8640 BESSEMER AVENUE  
CLEVELAND, OHIO 44127

CUSTOMER: AIRFASCO INDUSTRIES, INC.

2655 Harrison Ave., S.W.

Canton, OH 44706

THIS IS TO CERTIFY THAT BRITE METAL TREATING INC. HAS PROCESSED THE FOLLOWING MATERIAL IN ACCORDANCE WITH MOST WIDELY ACCEPTED METALLURGICAL PROCEDURE.

AFC P.O. NO. 16547 WEIGHT 4,134# NO. BINS 5

DESCRIPTION AN4-41A LOT NO. 12903 HEAT NO. - 532087

BMT ORDER NO: B- 135010 Core Hardness Specifications: 28-32RC

DATE RECEIVED 12/7/06 DATE SHIPPED 12/11/06

### HEAT TREATING TEST RESULTS

NUMBER OF SAMPLES 15 pcs

CORE HARDNESS 28-30RC

INSPECTOR U.L.

SIGNED 

TITLE C.E.O.

DATE 12/9/06

**RECEIVED**

DEC 11 2006

Cardin



# AIRFASCO Industries

2655 Harrison Avenue SW Canton, OH 44706

## Nondestructive Testing Certification Wet Fluorescent Magnetic Particle Inspection Technique

### Part Data

Part Number	Lot Number	Dimensions	Part Description
AN4-41A	12903	1/4-28 x 4 5/32	BOLT-MACHINE, AIRCRAFT

### Reference Data

Specification	Procedure Number	Acceptance Criteria
ASTM E1444	MT-1	No Cracks, NASM 6812

### Inspection Equipment Data

Model Number	Manufacturer	Serial Number
H-800 Retro	Magnaflux Corporation	91R00150

### Inspection Material Data

Particles	Mfr	Batch No.	Carrier	Mfr	Batch No.
14A	Magnaflux	10G078	MG II	Magnaflux	14B056

### Technique Data

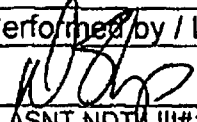
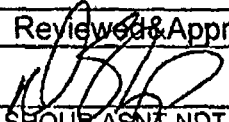
Type Current	Circular Field		Longitudinal Field	
	Headshot Amps	Central Conductor Amps	Coil shot Amps	Coil Turns
FWDC	170	N/A	520	5

Particle application by the flow method, continuous technique  
Demagnetization performed by the AC Coil method, Residual field +/- 2

### Inspection Results

Lot Size	Inspection Sample Size	Quantity accepted	Quantity rejected
66074	80	80	0

Notes:

Performed by / Level	Reviewed & Approved by:	Date
 D. SHOUP ASNT NDT LIII#176608	 D. SHOUP ASNT NDT LIII#176608	8/5/14

MAC FASTENERS, INC.  
1110 ENTERPRISE  
OTTAWA, KANSAS 66067

**CERTIFICATE OF CONFORMANCE  
AND  
MANUFACTURER'S AFFIDAVIT**

CUSTOMER BILD INDUSTRIES

PO: 89525

PART NUMBER: AN4-41A

REV: 3

LOT NUMBER: 84369

MANUFACTURED QUANTITY: 4,000

MILL HEAT NUMBER: 8290962

COUNTRY OF ORIGIN: UNITED STATES OF AMERICA

DFARS 252.225.7009 Compliant

**MERCURY FREE CERTIFICATION**

MacFasteners certifies that the parts referenced in the above lot number  
do not contain Mercury or Mercury compounds, and were  
manufactured in a Mercury free environment.

We certify that the parts furnished against the above referenced purchase order were manufactured by MAC  
FASTENERS within the United States, and were processed in accordance with all applicable drawings and  
specifications. Objective evidence of compliance is on file, subject to examination upon request.

Mac Fasteners is a DISC QSLM approved Manufacturer - CAGE Code 0RFT4  
Mac Fasteners is an Airbus approved Supplier - 203399

DATE: 08/25/16

  
QUALITY ASSURANCE REPRESENTATIVE



# Johnstown Wire Technologies

124 Laurel Ave,  
Johnstown, PA 15906

Phone: 814 532-5756  
Fax: 814 532-5684

## TEST REPORT

WORK ORDER  
421135

LOT NUMBER  
K-8290962  
SALES ORDER / RLS  
096286 / 001  
CERT ID / REV  
00044689 / 01

SOLD TO

Mac Fasteners, Inc.  
Best Way Distribution  
13209 Arrington Rd. Docks 17-20  
Grandview, MO 64030  
USA



CUSTOMER P.O. 110853	CUSTOMER PART 8740-2475	QUANTITY 30,004 LBS	COILS 14	LADING NO 00139310	SHIPMENT DATE 06/22/2016
<b>SPECIFICATION</b> MacFast-87247 AMS2301; AMS6322; AMS-S-6049A; MIL-S-6049A 8740 DFARS TS 95000 PSI Max Defense Federal Acquisition Regulation Supplement Silicon Killed Fine Grain Aircraft Quality/Cold Heading Quality Drawn From Annealed Rod Spheroidize Annealed In Process Heavy Phos & Light Lube Ctd Size: .2475 +.0005 -.0005					
<b>CERTIFICATION REQUIREMENTS</b>					
<b>Chemical</b>					
C .40	Mn .87	P .009	S .014	Si .25	Al .028
Ni .41	Cr .50	Mo .22	Cu .09	V .004	
Ch .000	Ti ???????	N .0068	Sn .006		
<b>Physical</b>					
J1 58	J10 41	J11 39	J12 38	J2 57	J3 56
J5 54	J4 56	J6 53	J7 51	J8 48	J9 44
<b>Mechanical</b>					
<b>TEST</b>	<b>UNITS</b>	<b>HIGH</b>	<b>LOW</b>	<b>AVERAGE</b>	
Tensile Str	Lbs/SqIn	86000	85000	86000	
RA Per Cent	Percent	74.4	71.0	72.6	
Decarb FFD	Inches	.000	.000	.0000	
Surface def. depth	Inches	.001	.000	.0001	
<b>Rod / Melt Source</b>					
Rod Source Republic	Melt Source Republic	Country of Origin USA	Nafta Yes		

I certify that the results are a true and correct copy of the records prepared and maintained by JOHNSTOWN WIRE TECHNOLOGIES in compliance with the requirements of the cited specification. Chemistry is as reported by the rod / bar supplier and is not in JWT A2LA accreditation. This test report cannot be reproduced or distributed except in full without the written permission of JOHNSTOWN WIRE TECHNOLOGIES. The test results certified herein relate only to the items tested.

*Daniel J. Malik*  
Daniel J. Malik, Director of Quality Assurance

52



1807 EAST 28TH ST.  
PHONE: 330-438-5580

LORAIN, OH 44055  
FAX: 330-438-5695

CERTIFICATE OF TESTS

REPUBLIC STEEL

12/17/2015  
1:39:00 PM  
PAGE 1 OF 2

PURCHASE ORD: 89323  
PART NUMBER: FXT40AA-.375  
ORDER NUMBER: 1619103 - 01  
HEAT: 8290962

PURCHASE ORDER DATE: 10/5/2015  
ACCOUNT NUMBER: 5672-1920-01  
SCHEDULE: 3124-96  
REVISION: 1

==== CHARGE ADDRESS ===== SHIP TO =====

JOHNSTOWN WIRE TECHNOLOGIES  
124 LAUREL AVE  
JOHNSTOWN, PA 15906

JOHNSTOWN WIRE TECHNOLOGIES  
Doug Lohr  
124 LAUREL AVE  
TRUCK STPO 9 ROD DOCK  
JOHNSTOWN, PA 15904

----- MATERIAL DESCRIPTION -----  
HOT ROLLED STEEL COILS ALLOY JOHNSTOWN WIRE SPEC RW-100 REVISION DTD 11/04/14 EXC PARA 10.3 AMS  
6322P EXC HARD JOHNSTOWN WIRE SPEC PART NO. FXT40AA REVISION DTD 12/31/00 MIL S 6049A & AMD 1 COND  
B-1 EXC MARK & UT WAIVED AMS 2301K JOHNSTOWN WIRE SPEC RW-005 REVISION DTD 11/08/13 EXC SURFACE  
DEFECTS EF-AISI-8740-H FINE GRAIN VACUUM DEGASSED AIRCRAFT QUALITY FIXED PRACTICE QUALITY RESTRICTED  
CHEMISTRY RESTRICTED MAX INCIDENTAL ELEMENTS TEST REPORTS OF MECHANICAL PROPERTIES FOR INFO ONLY  
EXTRA TESTING

SIZE: RDS .3750 DIAM X COIL  
RDS 9.5250MM DIAM X COIL

----- LADLE CHEMISTRY % -----  
C MN P S SI CU NI CR  
0.40 0.87 0.009 0.014 0.25 0.09 0.41 0.50  
V MO SN AL B CB N  
0.004 0.22 0.006 0.028 0.0000 0.000 0.0068

----- CALCULATED TESTS -----

REDUCTION RATIO 1,177.6 TO 1

----- SEMI - FINISHED RESULTS -----

GRAIN SIZE TEST ASTM A29/ASTM E112  
PCE H30303 MCQUAID = 7.00000

JOMINY HARDNESS TEST SAE J406/ASTM A255  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 20 22 24 26 28 30 32  
58 57 56 56 54 53 51 48 44 41 39 38 36 35 34 33 32 31 31 30 30 30 29 29

MACRO ETCH TEST ASTM E381/MIL STD 430  
ETCHANT: HCL TEMPERATURE: 170  
S R C  
AVG 1 1 1

MAGNETIC PARTICLE TEST AMS 2301 AMS2304  
IND AVG IND AVG  
FREQ FREQ SEV SEV  
PCE 03 0 0 0 0

MICROCLEANLINESS TEST ASTM E45 METHOD A  
SULFIDE SULFIDE ALUMINA ALUMINA SILICATE SILICATE OXIDE OXIDE  
A-T A-H B-T B-H C-T C-H D-T D-H  
AVG 1.4 0 0 0 0 0 0.5 0

----- FINISHED SIZE RESULTS -----

DECARBURIZATION TEST SAE J419/ASTM E1077/JIS G0558  
ETCHANT = NITAL MAGNIFICATION = 100X  
O. NAVARRO BY CHARLES CONLEY  
GENERAL MANAGER OF QUALITY ASSURANCE

*Omar Navarro*



1807 EAST 28TH ST.  
PHONE: 330-438-5580

LORAIN, OH 44055  
FAX: 330-438-5695

CERTIFICATE OF TESTS

REPUBLIC STEEL

12/17/2015  
1:39:00 PM  
PAGE 2 OF 2

PURCHASE ORD: 89323  
PART NUMBER: FXT40AA-.375  
ORDER NUMBER: 1619103 - 01  
HEAT: 8290962

PURCHASE ORDER DATE: 10/5/2015  
ACCOUNT NUMBER: 5672-1920-01  
SCHEDULE: 3124-96  
REVISION: 1

	SPIKE INCHES	COMPLETE INCHES	TOTAL DEPTH INCHES
PCE 8089	0.003	0	0.002

----- FINISHED SIZE RESULTS (CONTINUED) -----

TENSILE TEST STANDARD FORMAT  
TENSILE  
PSI  
PCE 8090 121000

CAPABLE OF SEAM DEPTH 1% MAX DIAMETER NOT LESS THAN .005 MAX

NOTES -----  
CHEMICAL ANALYSIS CONFORMS TO APPLICABLE SPECS: ASTM B415, LBL10129, LBL10130, ASTM E1019, LBL10158, LBL10114, AND ASTM E1085, LBL10184, LBL10188.

REPUBLIC STEEL HEREBY CERTIFIES THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE RESULTS OF SUCH INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS.

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

ALL TESTING HAS BEEN PERFORMED USING THE CURRENT REVISION OF THE TESTING SPECIFICATIONS.

RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FED STATUTES TITLE 18 CHAPTER 47.

THE MATERIAL WAS NOT EXPOSED TO MERCURY OR ANY METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURE DURING PROCESSING OR WHILE IN OUR POSSESSION.

NO WELD OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

THE RESULTS REPORTED RELATE ONLY TO THE ITEMS TESTED.

THE PRODUCTS SUPPLIED BY REPUBLIC STEEL DO NOT HAVE TANTALUM, TIN, TUNGSTEN, OR GOLD (COLLECTIVELY, "CONFLICT MINERALS") ADDED DURING PRODUCTION. ANY MEASURABLE AMOUNTS OF THESE ELEMENTS CONTAINED IN OUR STEEL ARE DERIVED FROM RESIDUAL MATERIALS IN THE RECYCLED SCRAP THAT WE PURCHASE FOR ELECTRIC ARC FURNACE STEEL MAKING. THEY ARE NOT "NECESSARY TO THE FUNCTIONALITY OR PRODUCTION OF OUR STEEL."

SOURCE INFORMATION -----  
MELT SOURCE: CANTON CAST ROLL MELT COUNTRY: U.S.A HOT ROLL SOURCE: LORAIN 9/10, U.S.A  
MELT METHOD: EF BLOOM RED. RATIO: 1177.6

----- END OF DATA ----- CC ----- END OF DATA -----  
WITH SHIPMENT 1 COPY PRINTED AT SHIPPING AREA  
FILE 1 COPY

O. NAVARRO BY CHARLES CONLEY  
GENERAL MANAGER OF QUALITY ASSURANCE

*Om2r Navarro*

# **DE TRAY**

## **Plating Works**

Specialized Electro-Plating and Polishing  
Nickel  
Copper  
Decorative Chrome  
Satin Chrome  
Zinc  
Cadmium  
Passivate  
Bright Dip  
Strip Copper  
Descale

10405 EAST ELEVENTH STREET • INDEPENDENCE, MISSOURI 64052  
Phone (816) 252-8411 Fax (816) 252-8527 • E-mail: DeTrayPlating@Aol.com

August 23, 2016

Mac Fasteners  
1110 East Enterprise Street  
Ottawa, Kansas 66067

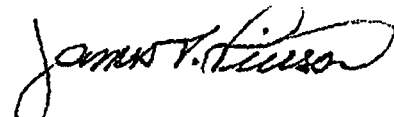
Subject: Certification

This is to certify that the following parts have been cadmium plated QQ-P-416/AMS-QQ-P-416/NAS4160/AMS2400, Type II, Class 2. Please reference our Invoice# 204109 dated 8/23/2016 for:

Lot# 84369

P.N.- AN4-41A

James T. Pierson, Vice-President



DE TRAY PLATING WORKS



**2655 HARRISON AVE. SW  
CANTON, OH 44706  
PHONE: (330)430-6190  
FAX: (330)430-6199**

## **CERTIFICATE OF CONFORMANCE**

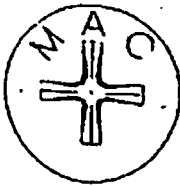
## EAST COAST AVIATION

I Hereby Certify that on 2/26/13 Airfasco Industries provided the supplies called for by Contract/ PO Number 65702 in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7014 ALT 1 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.

  
WM. DENT

Quality Assurance Representative

[illegible]



**MAC FASTENERS, INC.**  
1110 E. ENTERPRISE  
OTTAWA, KS 66067

**CERTIFICATE  
OF  
CONFORMANCE**

CUSTOMER M & M Aerospace		P. O. NUMBER OR4787
PART NUMBER NAS517-2-00 Rev 4		LOT NUMBER 15137
QUANTITY 110,000	MATERIAL HEAT NUMBER D48300	DATE 3/5/02

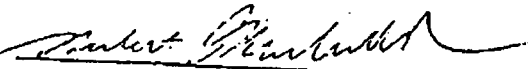
WE HEREBY CERTIFY THAT THE PARTS FURNISHED AGAINST THE ABOVE REFERENCED PURCHASE ORDER WERE PROCESSED IN CONFORMANCE WITH ALL APPLICABLE DRAWINGS AND SPECIFICATIONS. OBJECTIVE EVIDENCE OF COMPLIANCE ARE ON FILE SUBJECT TO EXAMINATION UPON REQUEST.

**RECEIVED**

SEP 16 2004

P102333-01-01  
AERO FASTENER CO., INC.



  
QUALITY ASSURANCE  
Robert MacDonald, President

3/5/02

DATE





2655 Harrison Ave. SW  
Canton, Ohio 44706-3047  
Phone: 330-430-6190  
Fax: 330-430-6199

**PHYSICAL AND CHEMICAL CERTIFICATION**

DATE MFG.: 03/30/15

PART NO.: AN5-32A per NASM5-32A rev.3

AFC LOT NO.: 24917

QTY MFG.: 21,250

PROCUREMENT SPECIFICATION: Produced per NASM 6812

**HEAT TREAT**

VENDOR: Brite Metal

CERTIFICATION NO.: 168778

PROCUREMENT SPECIFICATION: Heat Treat per AMS 2759

**PLATING**

VENDOR: Beringer Plating

CERTIFICATION NO.: 85873

PROCUREMENT SPECIFICATION: Cadmium Plate per AMS-QQ-P-416 C, Type II, Class 2

**MATERIAL**

MILL: Cuyahoga Steel/Republic COUNTRY OF MELT: USA HEAT: 8962033

GRADE SPECIFICATION: Alloy Steel per AMS 6322 N, Type 8740, .444"

8740 MATERIAL CHEMISTRY											
ELEMENT-ID.	-C-	-MN-	-P-	-S-	-SI-	-NI-	-CR-	-MO-	-CU-	-AL-	Other
LADLE	.410	.890	.015	.014	.250	.490	.460	.210	.100	.027	

PHYSICAL PROPERTIES				
PHYSICAL	TENSILE	YIELD	SHEAR	HARDNESS
REQUIRED	6,500 lbs.	4,980 lbs.	5,750 lbs.	HRC 26-32
ACTUAL	9,584 lbs.	8,345 lbs.	6,612 lbs.	HRC 30-31

We hereby certify that the above data is correct and that the fasteners have been manufactured and inspected in accordance with Airfasco Industries quality requirements.

QS-082  
REV 0  
2/15

Airfasco Industries  
Quality Assurance Representative:

T. West

**2655 Harrison Ave. SW  
Canton, Ohio 44706-3047  
Phone: 330-430-6190  
Fax: 330-430-6199**

## CERTIFICATE OF CONFORMANCE

## ECAS

I Hereby Certify that on **06/06/17** Airfasco Industries provided the supplies called for by Contract/ PO Number **FL79717** in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7009 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.

**Quality Assurance Representative**

  
WM. DENT

[illegible]

CUYAHOGA STEEL & WIRE  
31000 SOLON RD, SOLON, OH 44139

MATERIAL CERTIFICATION

DATE: 6/04/2002

SLIP NO: 67138

Sold to:

Ship to:

AIRFASCO INDUSTRIES  
207 SCHNEIDER ROAD  
NORTH CANTON

AIRFASCO INDUSTRIES  
1210 E 55TH  
CLEVELAND

OH 44720-3649

OH 44103

ALL CHEMISTRY DATA IS CERTIFIED BY THE HOT MILL SUPPLIER  
WHEN ELEMENT CONTENTS ARE REPORTED AS ZERO, ACTUAL CONTENTS MAY EQUAL ZERO OR  
WERE NOT REPORTED BY THE HOT ROLL MILL.

Cust No.	PO#	Ship Date	Ship VIA	F.O.B.
1030	31645	6/05/02	CUST TRUCK COL	SOLON

Our Order#	Date	Sales Rep	Qty Shipped
18157/	12/21/01	99	7,748

Item Description: .569/.572"R SP AN, PH.LB,12'UL 8740 0.5720RAIRBR

CHEMICAL ANALYSIS

HEAT#

8962033

C	Mn	P	S	Pb	Si	Cr	Ni	Mo
.410	.890	.015	.014		.250	.460	.490	.230
V	Al	Cu	Sn	Te	Bi	Se	Cb	F
.003	.027	.100	.008	.000	.000	.000	.001	.0000
N	DI (In)							
.0057	.000							

PHYSICAL ANALYSIS

Structure	Decarb	Hardness	YS-.2% OFF-PSI	Tensile-PSI
90% SPH		RB 95		95400
XElong	XReduct-Area	Carbon Free	T.A.D. Decarb	MET APPROVED
	62	.000	.000	JOHN CARROLL

COMMENTS:

02/26/02 B.B. CERT.

JOMINY HARDENABILITY

RECEIVED

JUN 13 2002

1 2 3 4 5 6 7 8 10 12 14 16 18 20 22 24 26 28 32

54

45

*John*



A DIVISION OF J.T. ADAMS CO., INC

4520 WILLOW PARKWAY  
CLEVELAND, OHIO 44125  
PHONE (216) 641-3290  
FAX (216) 641-1223  
www.tensile.com

**CERTIFIED TEST REPORT**

Airfasco Industries Inc.  
2655 Harrison Ave. SW  
Canton OH 44706

Job No.: B4-198-395  
Date: 7-22-14  
Cust. PO#: 61111

Description: 1 sample Mill: Republic Country of Melt: USA  
Material: 8740 Heat# 8962033  
Spec: AMS 6322N

**TEST RESULTS**

**Product Analysis of Elements in % (OES per TTML C-011):**

	<u>Actual</u>	<u>Requirements</u>
Carbon	0.40	0.38-0.43
Manganese	0.90	0.75-1.00
Phosphorus	0.016	0.025 Max.
Sulfur	0.009	0.025 Max.
Silicon	0.25	0.15-0.35
Chromium	0.49	0.40-0.60
Nickel	0.58	0.40-0.70
Molybdenum	0.25	0.20-0.30
Columbium	0.002	N/A
Aluminum	0.041	N/A
Copper	0.01	0.35 Max.
Vanadium	0.002	N/A
Titanium	0.002	N/A

The above conforms to specifications listed.

  
Authorized Agent



Page 1 of 1

**This Report May Not Be Reproduced Except In Full**

This report represents Tensile Testing interpretation of the results obtained from the test and is not to be construed as a Warranty or Warranty of the condition of the materials tested. Tensile Testing shall not be held liable for misinterpretation of conditions, loss, damage, injury or death arising from or attributable to delay preceding a test or subsequent to performance of a test.



## **CERTIFICATION OF PROCESS**

**CUSTOMER:** AIRFASCO INDUSTRIES, INC  
2655 HARRISON AVE SW  
CANTON OH 44706

**THIS IS TO CERTIFY THAT BRITE METAL INC. HAS PROCESSED THE FOLLOWING MATERIAL IN ACCORDANCE WITH THE MOST WIDELY ACCEPTED METALLURGICAL PROCEDURE.**

**PO #:** 61689      **WEIGHT:** 1716      **NO. BINS:** 1      **NO. PCS:** 21,250

**PN#:** AN5-32A      **LOT#:** 24917      **MATERIAL#:** 8740

**BM ORDER NO:** 168778      **CORE HARD SPECS:** HRC 28-32

**PROCESS TO:** AMS 2759

**DATE RECEIVED:** 02/20/2015      **DATE SHIPPED:**

### **HEAT TREATING TEST RESULTS**

**NUMBER OF SAMPLES:** 2

**CORE HARDNESS:** RC 30 / 31

**SURFACE HARDNESS:** RC 30 / 31 @ .003

**CASE DEPTH:** N/A

**CORE HARDNESS AS QUENCHED:** N/A

**INSPECTOR:** SK

**DATE:** 3-5-15

Approved by Bruce Hogie  
Revision Date: 2/13/2013

## CERTIFICATE OF COMPLIANCE

**SUPPLIER:** BERINGER PLATING, INC.  
1211 DeValera Ave.  
Akron, OH 44310  
330-633-8409 Fx 330-633-8447  
sales@beringerplating.com

**CUSTOMER:** Airfasco Industries, Inc.

**Beringer Invoice:** 85873

**P.O. Number:** 61747

**Part Number:** AN5-32A

**Lot Number:** 24917-01

**Lot Quantity:** 21,250 pcs

**Specification:** Cadmium Plate per AMS-QQ-P-416C Type II, Class 2

Mercury Free Clause: No possibility exists for mercury contamination to occur during processing or testing of parts on this contract.

**Coating Thickness:** .0003 inches

**Embrittlement Relief**

**Baked:** N/A Hours at          F Within 1 Hour of Plating.

Inspection Level to applicable standard:

S-3 of MIL.-STD.-105D:

4 %

ASTM B602 Table II:

1.50%

Aircraft Braking System:

1%

ACC. X

**Certified By:**

*James Beringer Jr.*

James Beringer Jr.  
President

**Date:** 3/25/2015

# AIRFASCO Industries

2655 Harrison Avenue SW Canton, OH 44706

## Nondestructive Testing Certification Wet Fluorescent Magnetic Particle Inspection Technique

### Part Data

Part Number	Lot Number	Dimensions	Part Description
AN5-32A	24917	5/16-24 X 3 11/32	BOLT-MACHINE, AIRCRAFT

### Reference Data

Specification	Procedure Number	Acceptance Criteria
ASTM E1444	MT-1	No Cracks, NASM 6812

### Inspection Equipment Data

Model Number	Manufacturer	Serial Number
H-800 Retro	Magnaflux Corporation	91R00150

### Inspection Material Data

Particles	Mfr	Batch No.	Carrier	Mfr	Batch No.
14A	Magnaflux	10G078	MG II	Magnaflux	14B056

### Technique Data

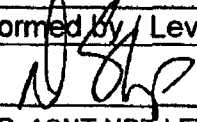
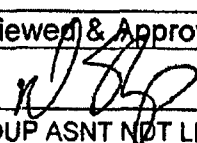
Type Current	Circular Field		Longitudinal Field	
	Headshot Amps	Central Conductor Amps	Coil shot Amps	Coil Turns
FWDC	200	N/A	790	5

Particle application by the flow method, continuous technique  
Demagnetization performed by the AC Coil method, Residual field +/- 3

### Inspection Results

Lot Size	Inspection Sample Size	Quantity accepted	Quantity rejected
21250	50	50	0

Notes:

Performed by Level	Reviewed & Approved by:	Date
 D. SHOUP ASNT NDT LEVEL III	 D. SHOUP ASNT NDT LIII #176608	3/30/15